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Hypothenar Hammer Syndrome in a Postal Worker

Anthony Gilet, M.D., Jared Dunkin, M.D., and Elaine Gould, M.D.

We present the case of a 48-year-old woman with hypothenar hammer syndrome. Hypothenar hammer syndrome is caused by chronic repetitive trauma to the ulnar artery and superficial palmar arch. This syndrome was originally described in males working in occupations that involved repetitive blunt trauma including working with jackhammers. It is believed that the ulnar artery is repetitively damaged by blunt compression against the hamate. Our patient was a postal worker who frequently used a rubber stamper.

Introduction

Hypothenar hammer syndrome is caused by chronic repetitive trauma to the ulnar artery and superficial palmar arch. It is believed that the ulnar artery is repetitively damaged by blunt compression against the hamate. Resultant intimal hyperplasia occurs along with duplication and fragmentation of the internal elastic lamina [4]. The damage to the arterial wall may lead to aneurysm formation with or without vessel thrombosis, which places the patient at risk for microemboli.

This syndrome was originally described in males working in occupations that involved repetitive blunt



Figure 1A. 48-year-old woman with hypothenar hammer syndrome. Frontal digital subtraction angiogram demonstrates a bilobed aneurysm overlying the ulnar artery with normal appearing distal vasculature.

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Abbreviations: CT, computed tomography; MRI, magnetic resonance imaging

Anthony Gilet, M.D. (Email: anthonygilet@gmail.com), Jared Dunkin, M.D., and Elaine Gould, M.D., are in the Department of Radiology, SUNY Stony Brook University Medical Center, Stony Brook, New York, USA.

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trauma including working with jackhammers. Over the years hypothenar hammer syndrome has been described in athletes and even dancers [2]. This article describes an unusual case of hypothenar hammer syndrome in a female postal worker. This broadens the scope of patients with hypothenar hammer syndrome and demonstrates that any type of repetitive trauma can result in arterial damage and aneurysm formation.

Case Report

A 48-year-old woman presented with left hand pain and a mass adjacent to the base of the fifth digit. The mass had been enlarging over the past several months. She worked as a postal worker and used a rubber stamper most of the day. On physical exam a pulsatile mass was visualized in the hypothenar region. The musculature of the digits appeared normal. A vascular lesion was suspected based on the physical findings and a direct angiogram was ordered.

The angiogram (Fig. 1) demonstrated a bilobed aneurysm measuring 2 x 5 cm overlying the proximal aspect of the fourth metacarpal bone which was being

fed by a single large branch of the ulnar artery. The palmar branches and distal digital branches were normal in caliber without occlusion.

The patient proceeded to surgery where it was discovered that the bilobed aneurysm was fed by four vessels extending off of the ulnar artery. The aneurysm was resected and a primary anastomosis was performed without the need for vascular grafting. The patient tolerated the procedure well without complications.

Discussion

Hypothenar hammer syndrome is caused by chronic repetitive trauma to the ulnar artery and superficial palmar arch in which the vessel is compressed against the hamulus. This repetitive trauma leads to arterial wall damage and can result in aneurysm formation with or without vessel thrombosis, which increases the risk of microemboli. If the aneurysm enlarges it can even compress the sensory branch of the ulnar nerve [3]. Several risk factors have been described and include pre-existent fibrodysplasia, smoking, and incomplete palmar arches [3]. Working conditions that subject the population

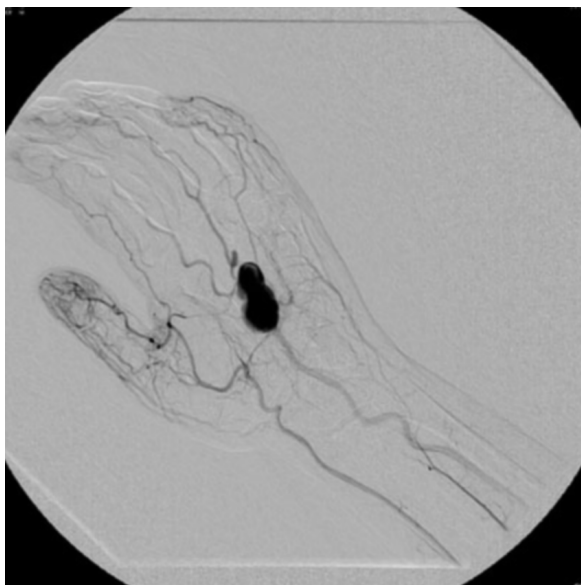


Figure 1B. Oblique digital subtraction angiogram demonstrates a bilobed aneurysm fed by the ulnar artery.

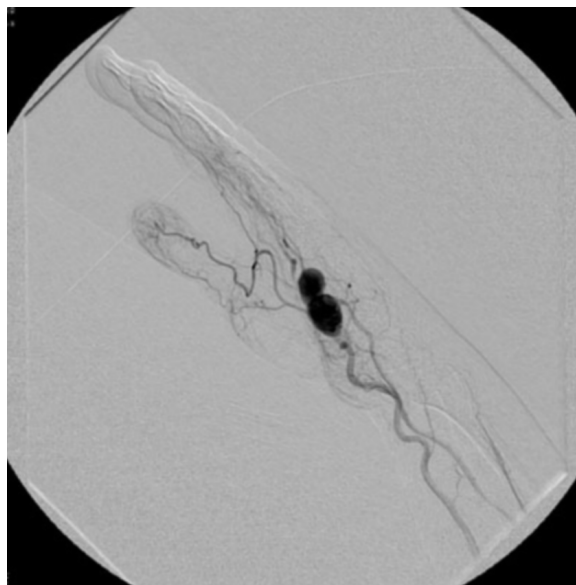


Figure 1C. Lateral digital subtraction angiogram demonstrating the bilobed ulnar artery aneurysm.

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to chronic repetitive trauma, including vibrating tools, also place the patient at risk for hypothenar hammer syndrome [1].

The patient can present with numbness in the distal ulnar nerve distribution, pain, Raynaud syndrome, ischemia of the fingers, and mass within the hypothenar region. Physical examination may reveal a pulsatile palmar mass. A Tinel sign can be elicited if the ulnar nerve is compressed. Diagnosis of this entity has been made with ultrasound, MR angiography, CT angiography, and direct angiography.

Angiography may reveal ulnar artery wall thickening, stenosis, occlusion, and aneurysm formation [3]. Care must be made to evaluate the palmar arches and digital arteries since they may be occluded secondary to micro-emboli. Medical treatment consists of cessation from the offending activity, cessation of smoking, and vasodilator therapy. If the aneurysm is large or there is an occluded segment, surgical excision may be required.

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